

# Accidental Injection of Formalin in Dental Operator: Case Report

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## ABSTRACT

**Introduction:** Dentist in riverside provides a friendly touch to their patients. In spite of precautionary measures being taken during the various dental treatment procedures yet complications do occur. In Dentistry formalin is commonly used for preserving tissue samples and for histological examination and related disciplines this process is known as fixing. In this compound the protein molecules are linked together making it easier to prepare thin slices for microscopic examination. As the treatment of pain related to dentistry cannot be provided without the use of local anaesthesia but sometimes mishapening occurs in using such drugs due to negligence and inadequate knowledge.

**Case report:** This is a case report of a male child patient with an accidental injection of formalin during dental procedure followed by its successful management.

**Conclusion:** Thorough knowledge of the medicament to be used is mandatory for both the operator as well as the assistant.

**Keywords:** Formalin, Antibiotics, Steroids

## INTRODUCTION

Formalin is colorless liquid resembling local anesthesia used for preservation of tissue prevents decay and acts as an embalming agent. If swallowed has a corrosive effect on the mouth, tongue and esophagus, systemically causes kidney failure sometimes leading to coma. At low levels, it is irritating to nose and can cause headache lead to bronchitis and emphysema. Myocardial depression can occur if 50-100 ml. of formaldehyde is ingested.<sup>1</sup> Contact with the skin may cause irritation or dermatitis. Eye contact with very dilute solutions causes irritation, but higher concentrations may damage the cornea and loss of vision.

## CASE REPORT

An eight year old male child reported to the Department of Pedodontics and Preventive Dentistry, KD Dental College and Hospital, Mathura with a chief complaint of pain in the upper right and left back tooth region of mouth since one month. Thorough Clinical and radiographic examination was done (Figure 1- Deep Carious lesions on Maxillary Posterior Teeth) which revealed that there is a deep carious lesion involving pulp. Treatment plan was Medication and Pulpectomy followed by Stainless Steel Crown. Patient had no relevant medical history and all the vital signs were normal. Buccal infiltration was given on the left side for endodontic procedure. Immediately the patient complained of burning sensation and started feeling discomfort. The procedure was stopped and the vital signs of patient were recorded which were in the normal limits. The contents of the local anaesthetic vial were then examined carefully and pungent odor was smelt which was of formalin. It has been ruled out that formalin has been injected in lieu of local anaesthesia. For-

tunately the injected amount was less but the syringe was loaded by the assistant. The patient and parents were informed about this severe negligence and its management. Generally this case requires surgical intervention but as the injected dose was less and it was an infiltration not a block so it was decided to manage without surgical intervention. Antibiotics, analgesics and steroids were prescribed to the patient. After 48 hours patient reported with a swelling in left maxillary region extending upto lower eyelid with decreased opening of eye (Figure 2- swelling after 48 hours with decreased opening of Left Eye). Medicines were continued for one week. Patient was recalled after a week and it was noticed that swelling has decreased and evidence of necrosis was not there in that area (Figure 3- Decreased Swelling after 1 Week). Patient was recalled every week for cleaning the area, kept under constant observation and after 21 days eye opening was complete and swelling subsided completely (Figure 4- Swelling Subsided after 21 days). Endodontic treatment was then completed. Patient was recalled after every month and over a six months period of follow up there were no signs of pain or swelling in the area.

## DISCUSSION

When an individual sustains an injury as a direct consequence of dental treatment that he has received, this may constitute an act of dental negligence. Complications occur in the dental office either due to negligence of dentist or the assistant. The most common cause of negligence for injecting formalin is because it is colorless resembling local anaesthesia and stored in the same vial for preserving specimens to conduct histological examination.<sup>2</sup> Another reason might be the wearing of face mask by the operator due to which the pungent odor of formalin is masked.<sup>3</sup> Accidental complications can also occur due to use of other chemicals in dental office such as hydrogen peroxide and sodium hypochlorite as these solutions are routinely used as an irrigating solutions loaded in the same syringe as that of local anaesthesia for endodontic procedures. In case of such complications it is important not to panic at that time rather to handle the situation with utmost care. This case was treated in the same department using conservative approach. A case reported by Saujanya KP et al also preferred a conservative approach in handling such case.<sup>4</sup> Another method for management can be

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**Figure-1:** Deep Carious lesions on Maxillary Posterior Teeth



**Figure-2:** swelling after 48 hours with decreased opening of Left Eye



**Figure-3:** Decreased Swelling after 1 Week



**Figure-4:** Swelling Subsided after 21 days

incision and placement of drainage by giving loose sutures in the area of injection as reported by Vaka RB et al in 2014 where formalin was injected erroneously while performing dental extraction.<sup>5</sup> Also a case has been reported where formalin solution was used as an irrigating solution instead of isotonic saline solution.<sup>6</sup> To avoid such complications it is important for the clinician to be well versed with the contents of the vial before injecting any drug. Conservative approach was preferred in this child patient to gain confidence and to avoid psychological trauma hence gaining co-operation for further dental treatment in future.

## CONCLUSION

As the complications are unavoidable while treating pa-

tients so it is important for the clinician to take precautionary measures by proper labeling of the local anesthesia bottles if used for some other purpose. The operator as well as the assistant should have a thorough knowledge of the contents of the solution before it is injected. Assistants who are unskilled and do not have knowledge of dental medicaments should not be entertained. The chemicals which are not to be used during the treatment should be placed away from the working area. The consent form should be obtained from the patients before starting any dental treatment to avoid other legal complications.

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